POWERLIGHT®
SOLAR ELECTRIC SYSTEMS

Sonoma County Water Agency
Santa Rosa, California

Parking System

Background

The Sonoma County Water Agency provides wholesale delivery of potable water to many cities and water districts, maintenance of flood control channels and reservoirs, and wastewater treatment for outlying areas of Sonoma County. The water agency is the largest user of electricity in Sonoma County, primarily due to its responsibility to pump potable water from the Russian River to its municipal water customers in southern Sonoma and northern Marin counties.

Challenge

The California energy crisis of the 1990s resulted in significant increase in the cost of electricity, so government agencies sought means of helping reduce energy use through energy efficiency measures, distributed generation and conservation. The Sonoma County Water Agency implemented an Energy Policy and Strategy to reduce energy use and stabilize their utility bills.

"We're proud to be harnessing Sonoma County's abundant sunshine and deploying solar power. Clean, emission-free, on-site solar generation enables us to be responsible stewards of our region while reducing operating costs and improving our community's health and quality of life."

Paul Kelley
Chairman
Sonoma County Water Agency
Board of Directors

Solution

The Sonoma County Water Agency's overall energy program is designed to reduce energy usage, lower energy-related costs and minimize impact on the environment. After evaluating multiple renewable energy alternatives, Sonoma County Water Agency chose to install on-site solar power systems on their administration building. By doing so, the water agency is enforcing their Energy Policy and Strategy, and meeting their electricity needs in a clean, sustainable manner.

Sonoma County Water Agency's solar project consists of multiple installations, which use silicon technology to convert sunlight directly into electricity. The solar photovoltaic (PV) installations total 522 kW, and include solar rooftop arrays and a parking system. Covering a combined area of 38,000 square feet, Sonoma County Water Agency's solar generation project is one of the largest municipal solar projects in Sonoma County, and generates the equivalent electricity during the daytime to power over 500 homes.

Benefits

Sonoma County Water Agency views its solar power system as a way to lower operating costs and improving air quality for its community. The grid-connected systems will provide nearly all the electricity needs of the administration building, and reduce the water agency's peak electrical load, when the utility grid is the most strained and electricity is most expensive. Sonoma County Water Agency anticipates average savings of $117,000 annually in avoided electricity purchases.

By reducing the use of fossil fuel-generated power, Sonoma County Water Agency's solar power system spares the environment from tons of harmful emissions, such as nitrogen oxides, sulfur dioxide and carbon dioxide, major contributors to smog, acid rain and global warming. Over the 30-year lifetime of the photovoltaic systems, the combined solar generated electricity will reduce emissions of carbon dioxide by 6,200 tons. These emissions reductions are equivalent to planting 1,800 acres of trees, removing 1,200 cars or not driving 15 million miles on California's roadways.

Specifications

Sonoma County Water Agency Administration Building
404 Aviation Blvd, Santa Rosa, CA 95403

System Type: Parking System
Date Completed: May 2006
System Peak Capacity: 100 kW
PV Surface Area: 7,000 square feet
Solar Electric Panels: 528

Photovoltaic System Description:
The parking system generates power for the agency while providing covered parking for vehicles. The solar array uses high efficiency photovoltaic (PV) modules to generate maximum energy output per square foot. The parking system features solar cells made of solid-state semiconductors to convert sunlight into direct current (DC) electricity. The DC output from the PV modules is converted to alternating current (AC) electricity by inverters located at the site, and then stepped up to three-phase AC electricity by isolation transformers for connection to the utility distribution system. The parking system features a fully engineered mechanical mounting system to securely fasten the solar panels, providing strength as well as structural integrity.

System Type: PowerGuard® Roof System
Date Completed: May 2006
System Peak Capacity: 422 kW
PV Surface Area: 30,800 square feet
Solar Electric Tiles: 2,224

Photovoltaic System Description:
The solar power system installed atop the administration building is a roof-mounted PV system. In addition to generating electricity, PowerLight's PowerGuard® roof system provides thermal insulation and protects the roof membrane from harsh UV rays and thermal degradation, which reduces heating and cooling energy costs and extends the life of the roof.

PowerGuard® Roof System

Sonoma County Water Agency
Santa Rosa, California

About PowerLight

Incorporated in 1995, PowerLight Corporation is a leading designer and installer of grid-connected solar electric systems. PowerLight's distributed generation products produce reliable, affordable clean power for businesses and government agencies worldwide. Inc. Magazine has ranked PowerLight Corporation among the top 500 fastest growing privately held companies for the past five years. Today, PowerLight has worldwide offices and a full line of commercial solar electric products.

PowerLight's Mission

PowerLight is committed to making clean power a mainstream and affordable source of the world's energy supply. Our solar products enable companies to reduce operating costs by transforming clean, abundant solar energy into electricity.

POWERLIGHT®

2954 San Pablo Avenue
Berkeley, CA 94702
main 510.540.0550
fax 510.540.0552
www.powerlight.com